

an EXN Operator that carries out administrative functions required by the system, such as registering users, corporate entities and banks to use the system, entering into operating agreements with banks, and opening and maintaining escrow accounts (referred to as "pooled accounts") at selected banks.

[0011] The EXN Server recognizes each authorized user through a unique personal alphanumeric code ("PAC") that authenticates the user to the Server and permits secure authorization for transactions to be made and referenced through the PAC. Authorization codes, which may be encrypted, may be included on a physical medium (such as a CD or magnetic strip plastic card), and authentication may also be further supplemented by requests for personal information through a challenge and response dialogue, which authenticates the user to the EXN Server and permits transactions to be made in the user's name. Alternatively, authorization may be had through the user's providing information through a downloadable application.

[0012] Users are cross-referenced to bank accounts (direct deposit accounts, or "DDAs") they control, and through which the user can make withdrawals, convert available funds into virtual funds ("e-cache") that may be used to make purchases, to settle accounts on the internet, or that may be reconverted from e-cache into available funds in a DDA. Banks are identified using a bank identification number.

[0013] In its simplest form, this invention permits a user to instruct the EXN Server to initiate a financial transaction. Transactions are carried out in cyberspace using movable icons representing e-cache that the user can manipulate using a computer mouse. The user is presented with a variety of tools to carry out the transaction, such as a virtual Automated Teller Machine (vATM) that can be used to obtain or redeem e-cache, an e-Wallet, which represents a repository to hold e-cache, and a merchant's e-register, which will accept e-cache in payment for internet or in-person transactions.

[0014] Concurrently, the EXN Server issues instructions to member banks that will be carried out on existing financial networks. In so doing, the EXN Server can make predetermined choices for structuring the transaction, taking into consideration such factors as transactional costs charged by other financial networks for various types of transactions, the time for settlement of the transaction, and the finality and immediacy to be accorded the transaction in real time.

[0015] In practice, the EXN Server maintains virtual accounts on-line, permitting users to convert available funds from the user's DDA into e-cache using a virtual ATM, and to use e-cache for purchases, bill paying, or any other electronic transfer or payment that is recognized by the system. Virtual transfers are recorded by the EXN Server until a user reconverts e-cache back into available funds, at which time actual monetary transfers may be initiated by the EXN Server to balance users' accounts. The process is akin to the EXN Operator's "selling" e-cache and withdrawing available funds from a user's DDA, or "buying" e-cache and depositing available funds into a user's DDA. E-cache may be held in a user's e-wallet until used, and while being so held is not available for withdrawal through conventional means. Such virtual funds may be used on-line for purchases, remittances, or transfer; or, if desired, may be redeposited into the user's bank account where they will become available for conventional withdrawals. Virtual

funds may also be maintained as e-cache by their recipients and re-used in other on-line transactions prior to being converted back to actual funds. Through this process, the costs of real monetary transactions may be diminished or eliminated.

[0016] The EXN Server provides tools and facilities to perform, or to enable a user to perform, the functions of funding a transaction, authenticating a user, authorizing a transaction, and settling a transaction. Funding is the process of providing e-cache to a user, for example, through a virtual ATM, as is described below. Authentication is the process of authenticating a registered user to conduct approved transactions through the EXN Server. Authentication involves the use of a PAC that is recognized by the EXN Server, and may be embedded on a physical medium (compact disc or credit card) bearing encoded information, or a challenge and response procedure. Authorization is the user's act of physically moving a computer mouse or keyboard to cause a transfer of e-cache to take place—a transaction that will be reconciled by an actual transfer of available funds either simultaneously or at some point in the indefinite future. Settlement of an EXN Server transaction occurs when available funds or their virtual equivalent, e-cache, are transferred in consideration of an obligation and the transfer has been recorded in each party's account, which may be a bank account (DDA) or an e-register. Settlement in real funds occurs when e-cache is converted into available funds in a pooled account controlled by the EXN Operator which are then transferred into a user's account using an automated clearing house commercial credit draft (ACH CCD).

[0017] All of these facilities and functions can take place either as intra-bank transactions, in which transfers and accounting take place within a single bank; or as inter-bank transactions, in which transfers take place between banks and institutions, with or without the assistance or intervention of intermediaries. The most significant distinction between intra-bank and inter-bank transactions is that external processing costs associated with inter-bank transfers of available funds using prior art systems will generally be somewhat greater than for intra-bank transfers.

[0018] E-cache is created or destroyed by the EXN Operator as users and merchants convert available funds in their bank accounts to e-cache, or redeem e-cache to obtain available funds. The EXN Operator maintains a number of pooled funds accounts in selected banks. The conversion of available funds into e-cache normally takes the form of a user's withdrawing e-cache from a vATM being operated by the EXN Server. As the EXN Server provides e-cache to the user, it simultaneously directs the user's bank to remove available funds from the user's DDA and place them into a pooled funds account owned by the EXN Operator.

[0019] The EXN Operator maintains pooled funds accounts at numerous banks throughout the world, and the user's available funds can be transferred from the user's DDA into a pooled funds account at the user's bank without incurring transaction costs. If the EXN Operator does not maintain a pooled funds account at the user's bank, the user's funds can be transferred to any other bank in which the EXN Operator maintains a pooled funds account.

[0020] When a user desires to reconvert e-cache into available funds, the EXN Server will initiate a transfer of actual funds from one of the EXN Server's pooled funds account into the user's DDA, and will simultaneously destroy the e-cache tendered by the user. One advantage of